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AMENDMENTS TO THE DRAWINGS

The attached sheets of drawings include changes to Figs. 10, 15, 17, 20, 24, 25, 27, 28, 40, 41, 55, 66, 67, 68, and 76. In Figs. 10, 15, 17, 20, 24, 25, 27, 28, 40, 41, 55, 66, 67, 68, and 76, typographical errors have been corrected.

Attachment: Replacement Sheets

Annotated Sheets Showing Changes

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REMARKS

Applicants respectfully request entry and consideration of the amendments. If there are any issues that can be resolved via a telephone conference, the Examiner is invited to contact the undersigned at 404/685-6799.

Respectfully submitted,

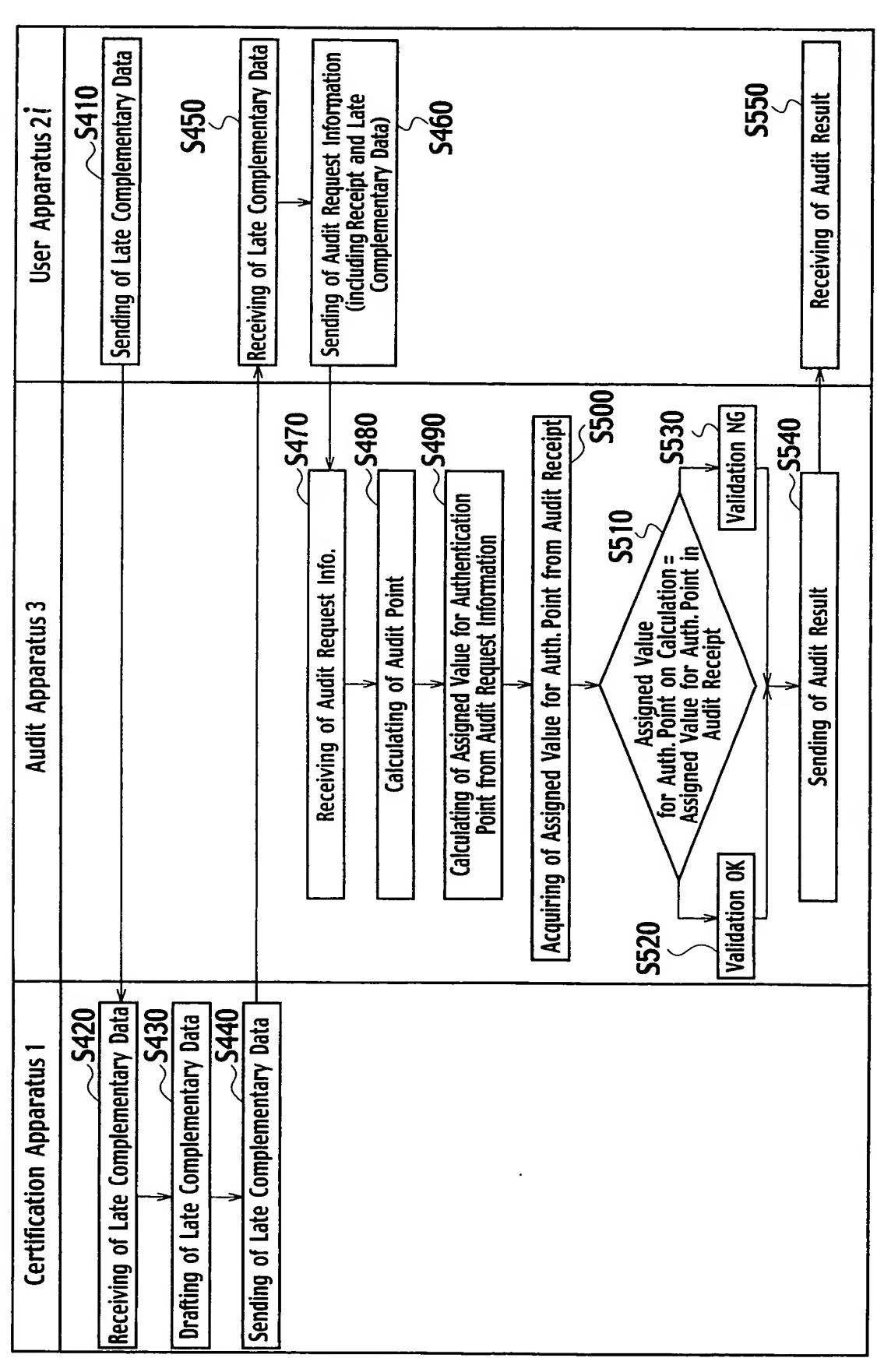
Brundal Waln

Brenda O. Holmes Reg. No. 40,339

Kilpatrick Stockton LLP 1100 Peachtree Street, Suite 2800 Atlanta, Georgia 30309 (404) 815-6500

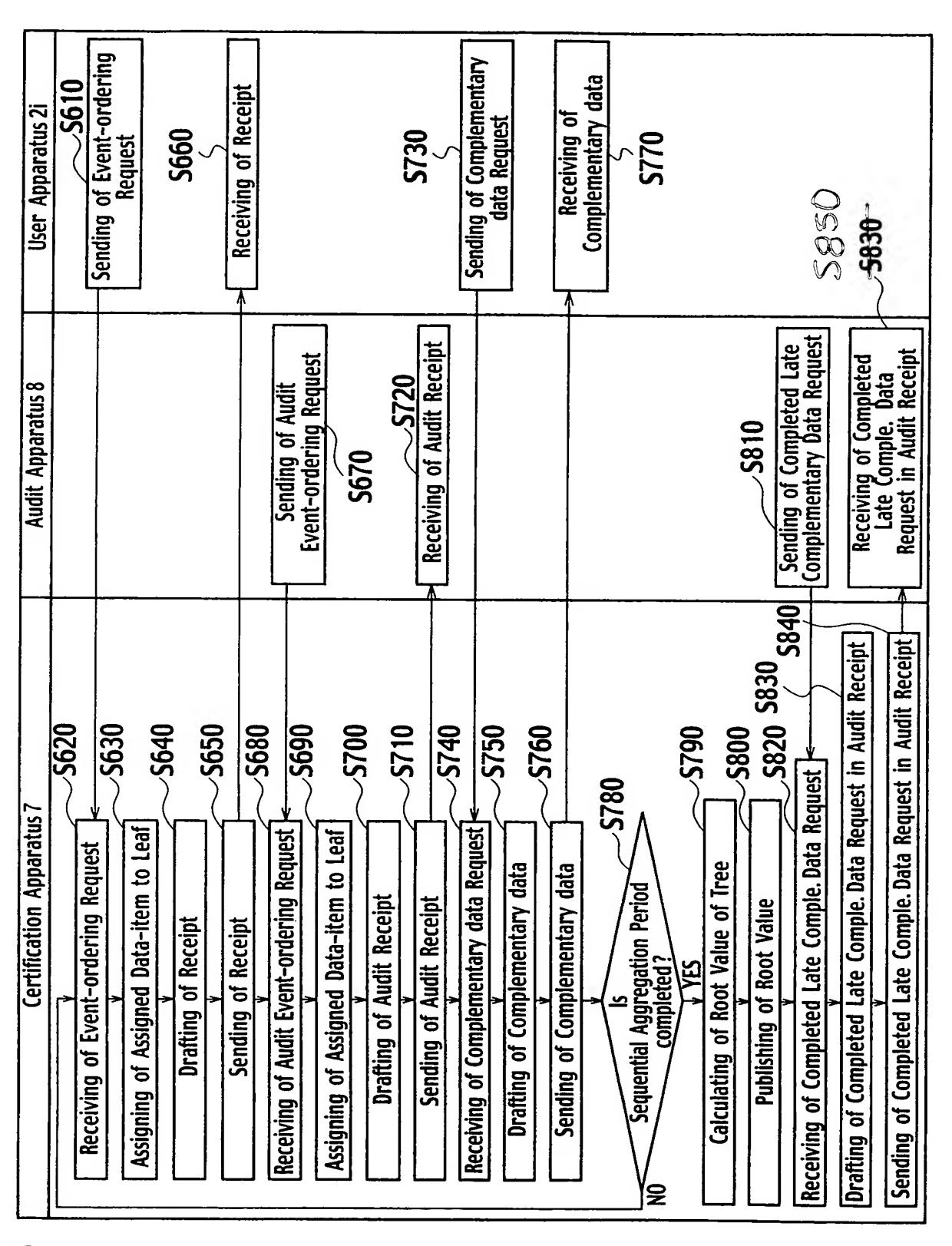
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F16. 10

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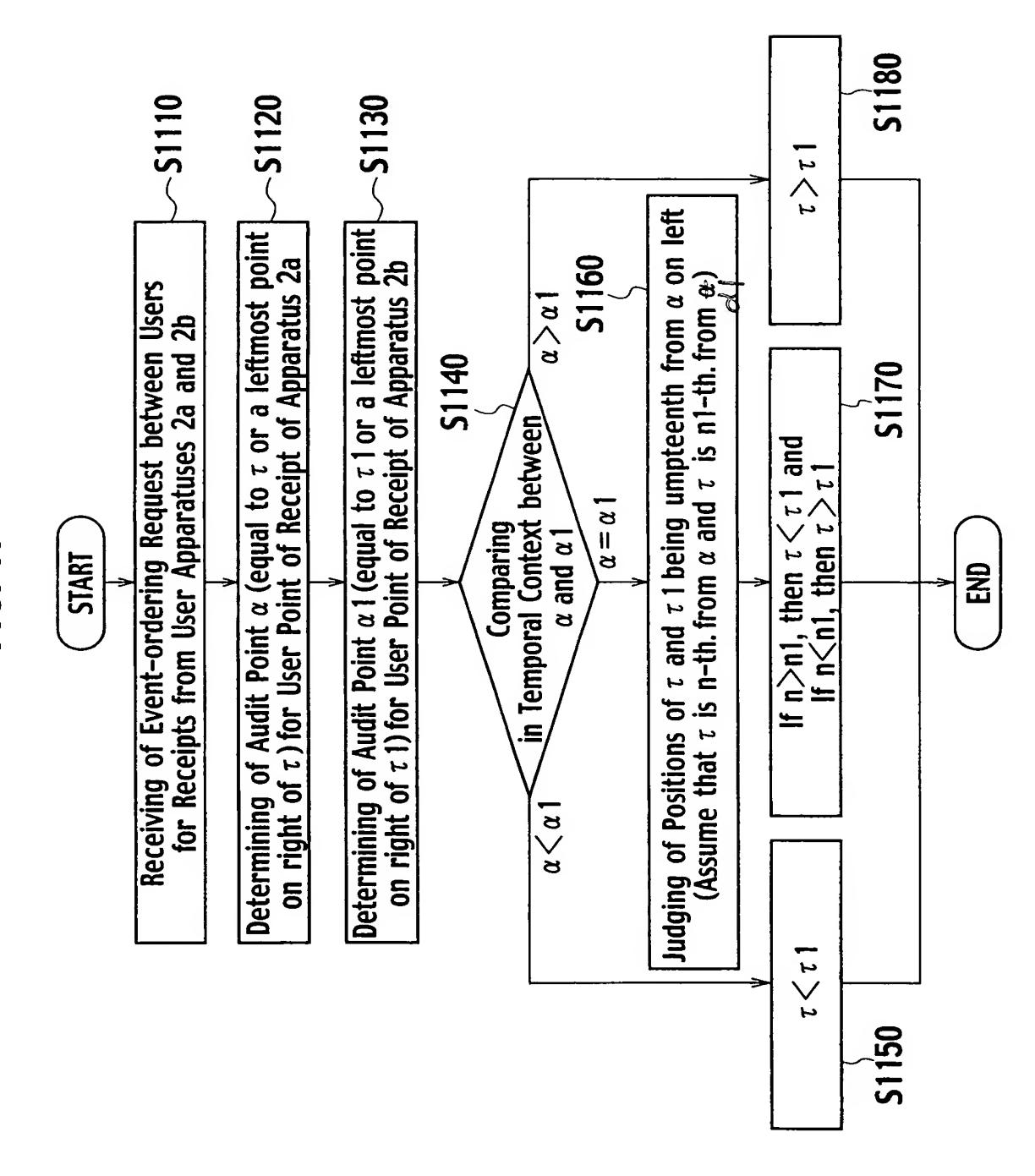


FIG. 17

Inventors: Eiichi HORITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
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FIG. 19

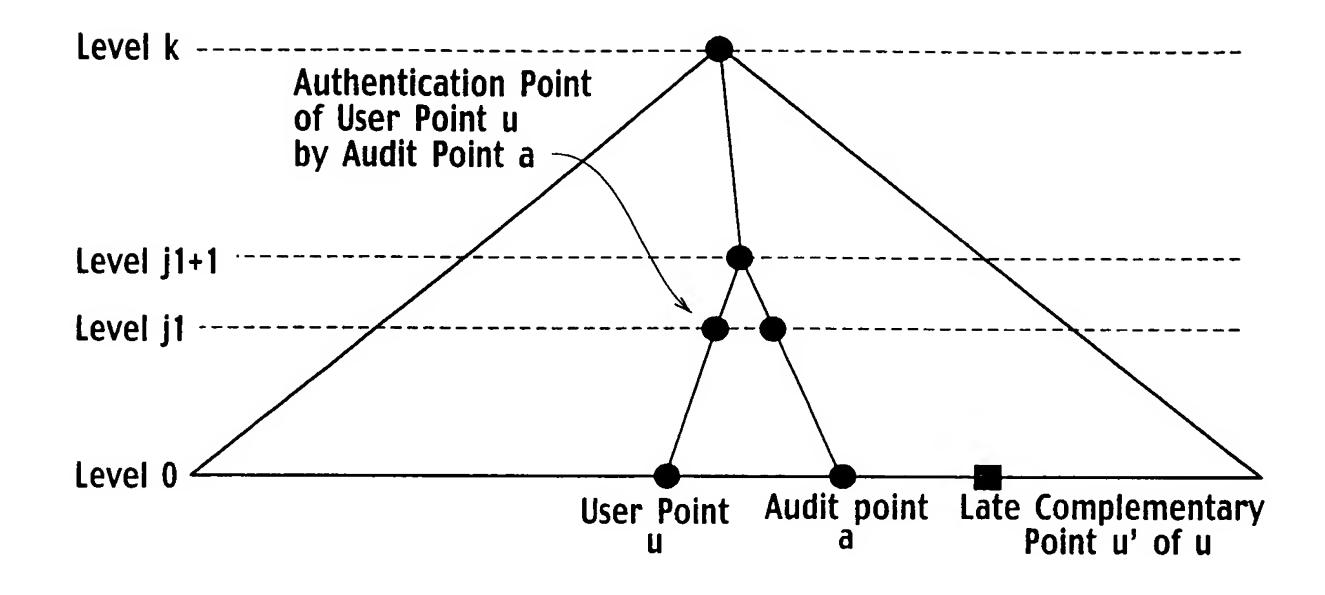
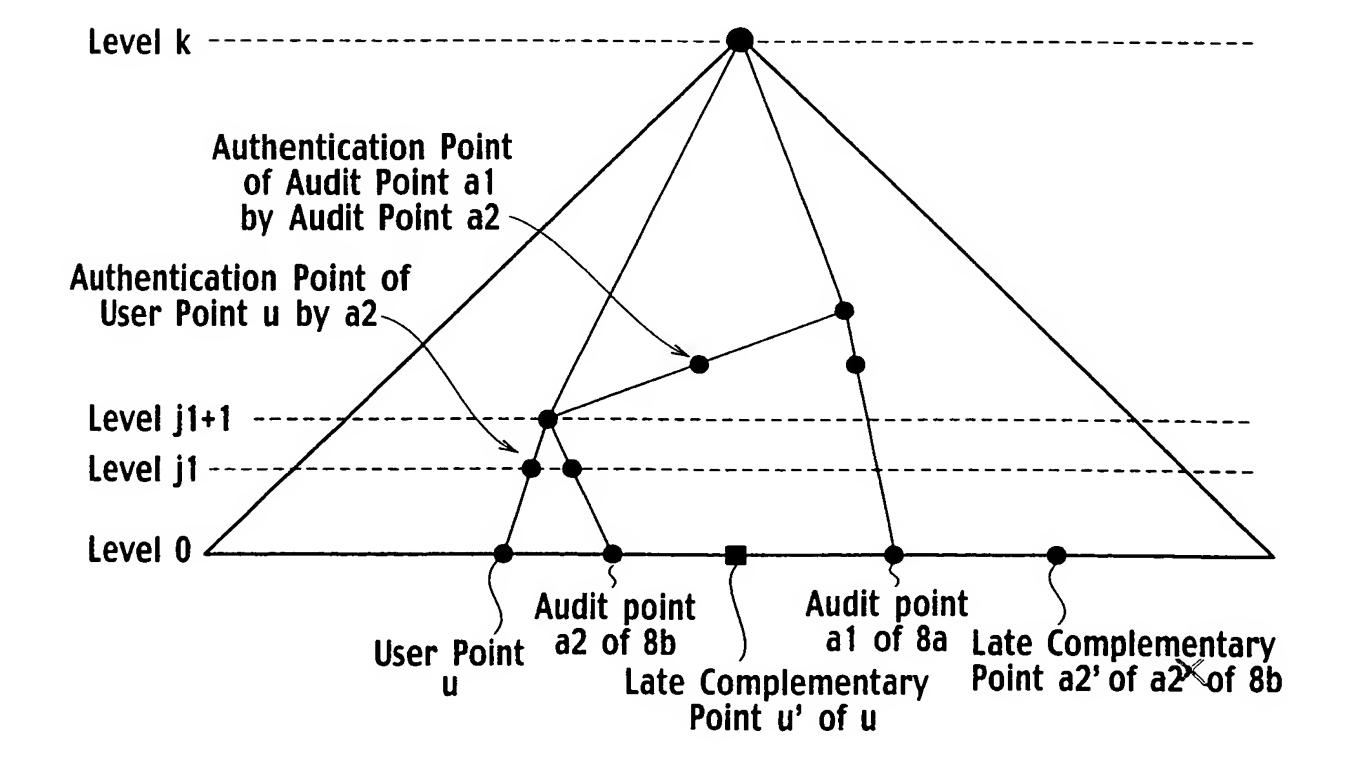


FIG. 20



Inventors: Eiichi HOBITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500

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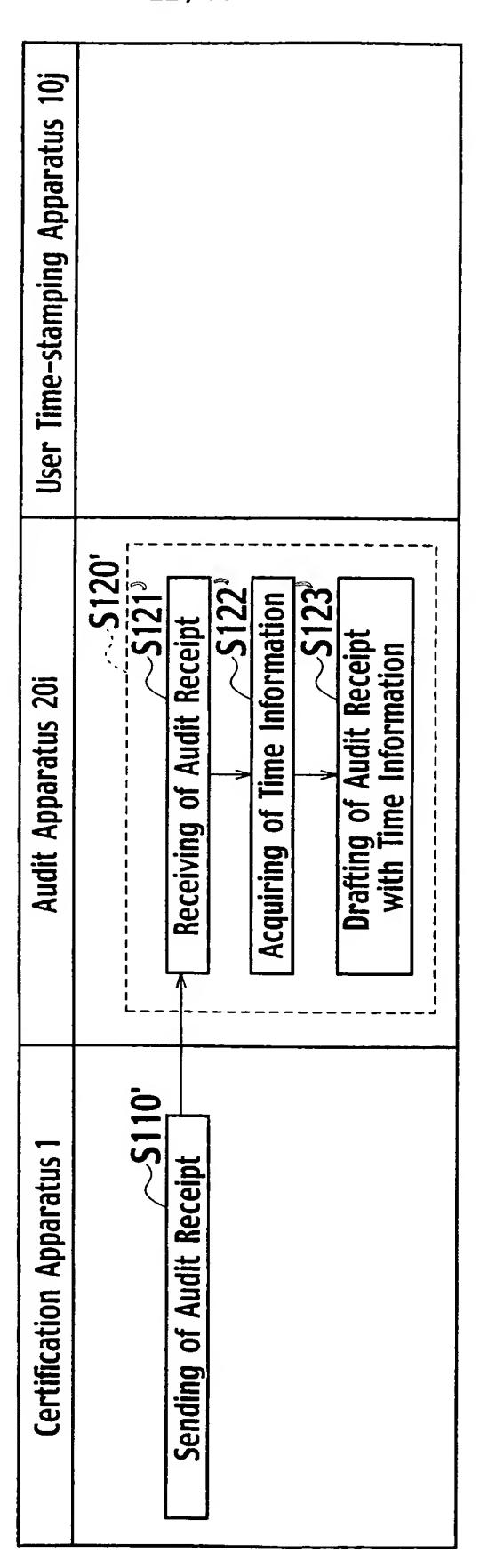


FIG. 24

Inventore: Eiichi HOIUTA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500

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Apparatus 10i-User Time-stamping Certificate Block-time Audit Result Audit Apparatus 20i Publishing of Block-time Incorporating E Certificate into A Audi **Certification Apparatus 1**

FIG. 25

Processing Procedure 1

```
(1) Loop 1: In a constructive method No. 3, the following processes
                              are repeated until a regular time interval is completed.
                                                                                                                                (1.3) Loop 2: Performing of the follow processes for j=0, ..., k
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               even number.
                                                                                                                                                                                                                                                                                                                                                                                     Set x1: = A<sub>j-1</sub>[index(rightChild (j, i))]
(Set x1 to an assigned value for right-child node(j, i).)
                                                                                                                                                                                       lectonild
                                                                                                                                                                                                                                                                                                                        (Set x0 to an assigned value for left-child node(j, i).)
                                                                                                                                                         (1.3.1) i → i<sub>j</sub>
(1.3.2) When j = 0, set A<sub>j</sub>[i]: = x.
(Set x to node(j, i<sub>j</sub>).)
(1.3.3) When j > 0, perform as follows.
                                                                                                                                                                                                                                                                                           Set x0: = Aj-1[index(HeftChiild (j, i))]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 is an
                                                            (1.1) Setting a request on acceptance to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1.3.4) Increasing ij by increment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>=</u>
                                                                                           (1.2) Increasing n by increment of 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Calculate x2 = h(x0 || x)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Set Aj[i]: = x2
(Assign x2 to node(j, i).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (1.3.5) Withdraw from loop 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Completion of loop 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Completion of loop 1
```

با

Inventors: Fiirhi HOBITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
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FIG. 28

```
(2) Performing of the following processes after withdrawing from
   loop 1 on reaching finish time.
     (2.1) Set k:= ceiling(log_2(n)).
     (2.2) Calculate rtPath(k, 0, n-1) and Set((0, r(0), ..., k(, r(k))) to the
            calculation result.
     (2.3) Loop 3:Performing of the follow processes for j=0,...,k
          (2.3.1) i \rightarrow i_j
          (2.3.2) Case of j = 0:
               (2.3.2.1) When i is an odd number:
                    • Produce a dummy r:=R(0,i)
                    • Set A<sub>j</sub>[i]:=r
                      (Assign r to node(0, i).)

Set bj: = true.
Increase ij by increment of 1.

         (2.3.2) Case of 0 < j ≤ k:
              (2.3.2.1) When i = r(j):
                        3(when node(j, i) is on rtPath(k, 0, n-1)):
                    (2.3.2.1.1) \times 0:= A_{j-1}[index(leftChild(j, i))]
                     Set x0 to an assigned value for left-child of node(j, i).)
                    (2.3\cancel{2}.1.2) \times 1: = A_{j-1}[index(rightChild(j, i))]
                    3 (Set x1 to an assigned value for right-child of node(j, i).)
                    (2.3.2.1.3) Calculate x2: = h(x0 || x1)
                    (2.3,2.1.4) Set A<sub>j</sub>[i]: = x2
                      3(Assign x2 to node(j, i).)
                    (2.3\cancel{2}.1.5) When i is an even number and j < k:
                     Increase i by increment of 1.
                      Calculate r: = R(j, i) and Set Aj[i]: = r
                        (Assign r to node(j, i).)
                      Set b<sub>j</sub>: = true.
                  3 · Set i:=i+1
              (2.3.2.2) When i = r(j) + 1, an odd number and j < k:
                    Calculate r: = R(j, i) and Set A<sub>j</sub>[i]: = r
                          (Assign r to node(j, i).)
                    • Set b<sub>j</sub>: = true.

    Increase is by increment of 1.

      Completion of loop 3
```

Inventors: Fiirhi HOBITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
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36 / 77 <5120a ~S130a **S142a** ~S200a S150a S240a S230a Receipt EOT(a) 2 2 S140a S220a of One Registration Point b of Leaf Number larger Extracting of Leaf Number n(a) from E07(a) and Searching of Registration Point of Apparatus 2B having Leaf Number than n(a) and Sending of Leaf Number n(b) to Apparatus 2A Calculating of Auth. Point o of a for b from n(a), n(b) and Assigned value V(o) for o from EO4(a), lateData(a, af) Q Judgment to Apparatus 2A (Registration of being ahead of Registration of b) of Postpositive-point Judging Request including Registration Point of Leaf Number larger than n(a) present? in Receipt Sending of Message "No Data for Comparison" of lateData(a, af) to Apparatus 2B Sending of Judgment to Apparatus 2A Immediate Comple. Data EQZ(b) received at b? User Apparatus 2B (Presence of Falseness) larger than n(a) to Apparatus 2A **VES VES** Is V(0) .⊑ Receiving contained ₹ Sending Selecting Receiving S160a S110a S170a **S144a** S180a S190a S250a S260a of Apparatus 2A Sending of Postpositive-point Judging Request with Receipt EOX(a) at Registration Point a to CApparatus 2B of Judgment from Apparatus 2B Sending of lateData(a, af) to Apparatus 2B at having Leaf Number larger than n(b) of Leaf Number n(b) Acquiring of lateData(a, af) of Point Provisional Terminal Point af User Apparatus 2A of Validation Acquiring of Judgment Selecting of Registration Point af Completing Receiving Receiving

FIG. 40

Inventara: Eiiahi HORITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
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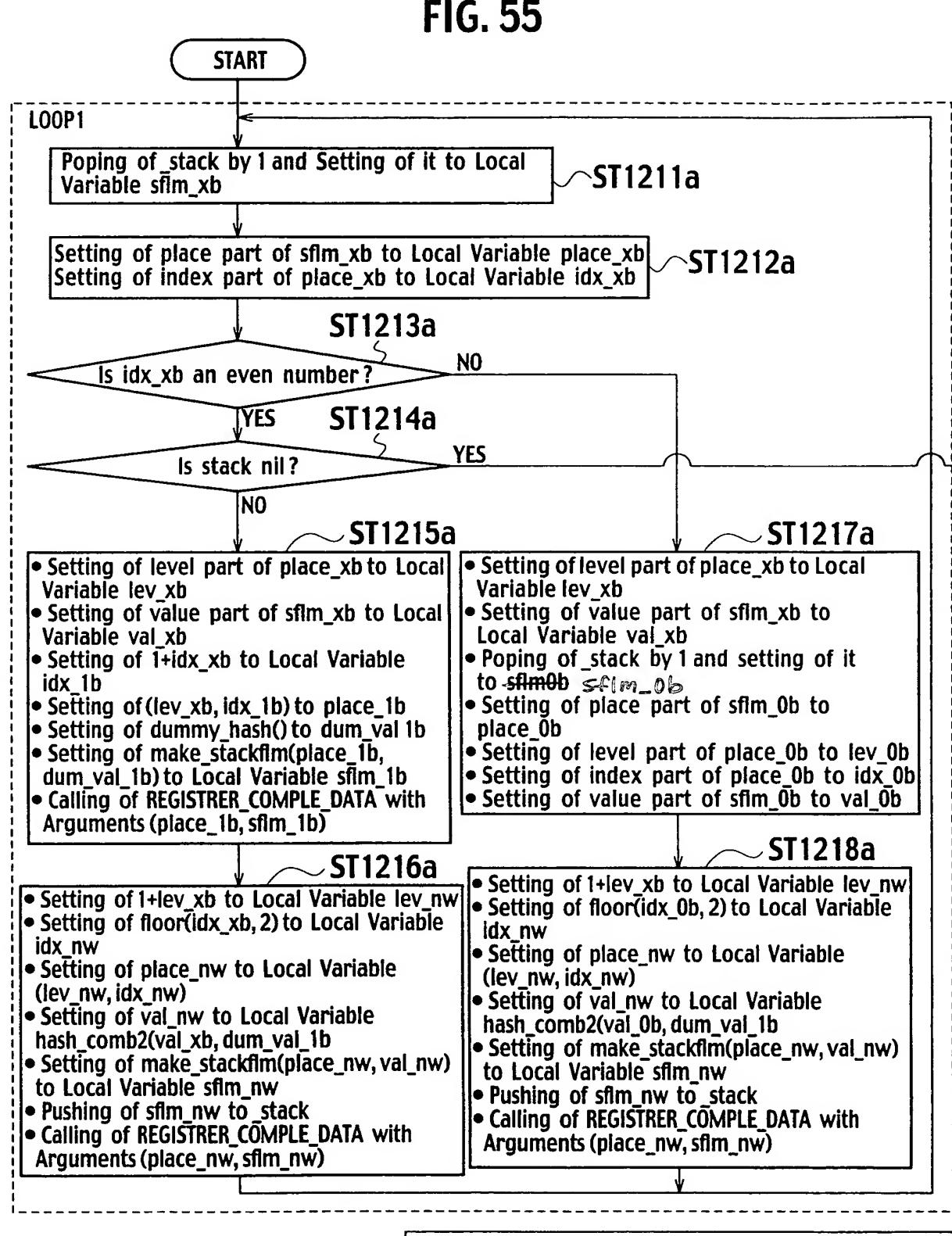
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~S400a .5390a ~\$360a S350a **EO**((a) S340a 웆 Point bf S380a smaller than Leaf Number of Message "No Data for Comparison" to Apparatus 2A Extracting of Leaf Number n(a) from EQT(a) and Searching of Registration Point of Apparatus 2B having Leaf Number smaller than n(a) and Registration Point of Apparatus 2B having Leaf Number larger than n(a) Receipt of Falseness) of b for a from n(a), n(b) and from EQZ(b), lateData(b, bf) **Terminal** of Leaf Number smaller than n(a) and Registration Point of Leaf Number larger than n(a) Receipt udgment to Apparatus 2A (Registration being behind Registration of b) Postpositive-point Judging Request including cting of Registration Point b of Leaf Number and One Provisional Registration Point bf of larger than n(a) Judgment to Apparatus 2A (Presence at Provisional .≡ Immediate Comple. Data E01(a) received at a? **User Apparatus 2B** N N YES **Is V(0)** lateData(b, bf) of Point b 0 of Auth. Point o Assigned value V(o) for Judgment to .⊑ contained o Calculating of Sending o ding <u>o</u> Sending o ng 8 Sele n(a) Sen Acquirir Receivin ~S410a ~S420a \$310a ~S344a of Judgment from Apparatus 28 sending of Postpositive-point Judging Request with Receipt EOA(a) at Registration Point a to Apparatus 2B **User Apparatus 2A** Completing of Validation Acquiring of Judgment Sending Receiving

16.41

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Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
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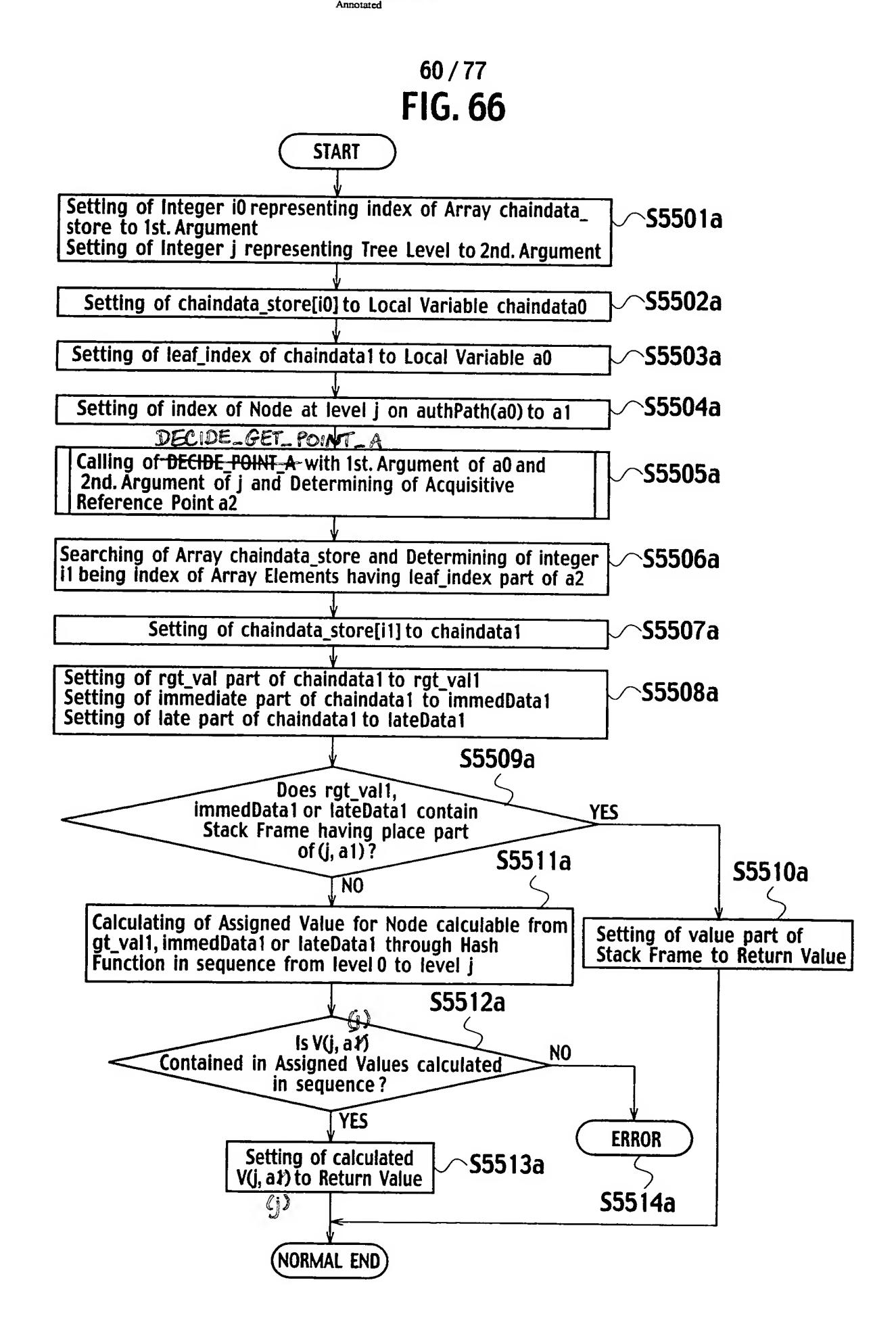
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Setting of content of sflm_xb to Return Value ST1219a

NORMAL END

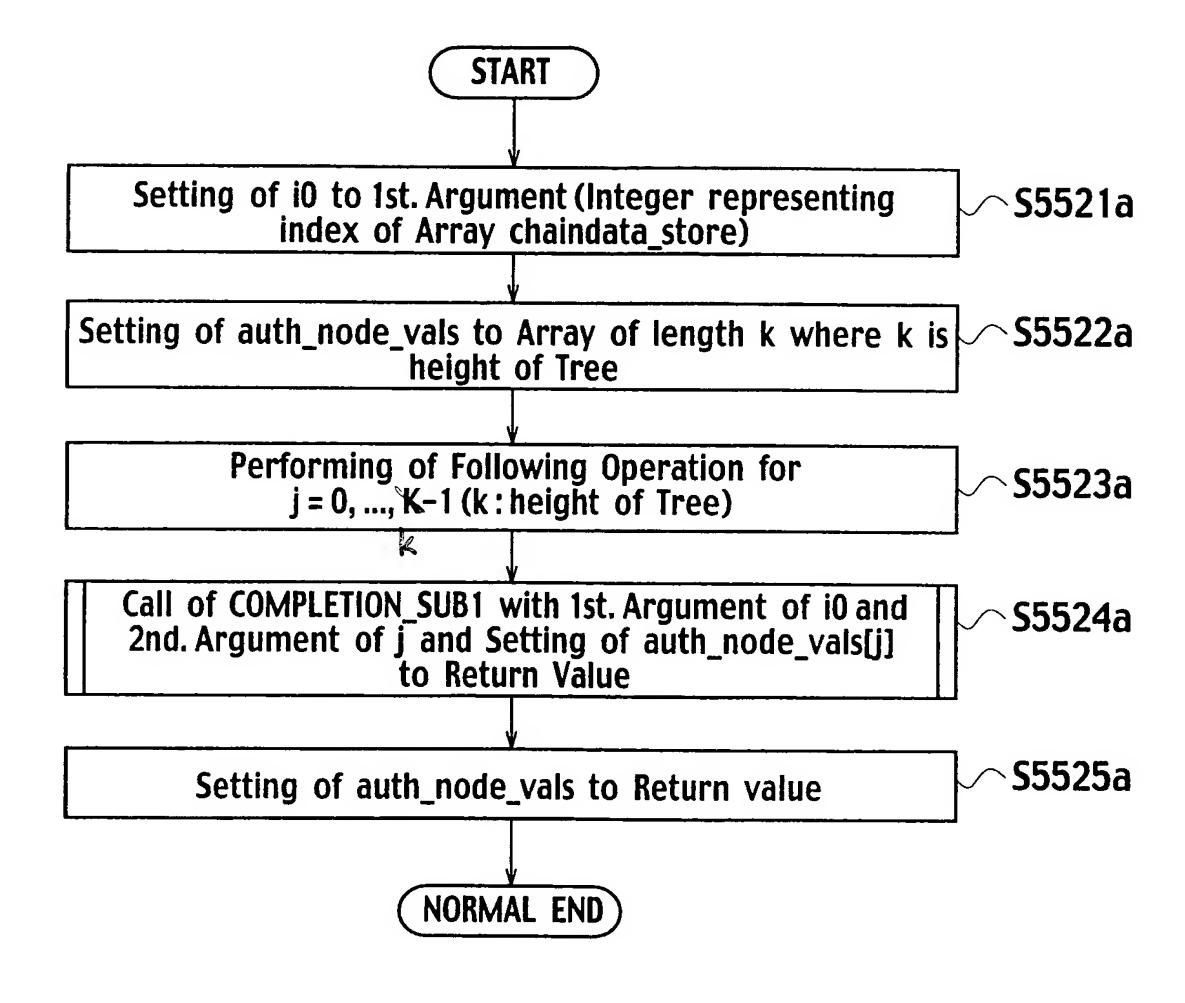
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Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500



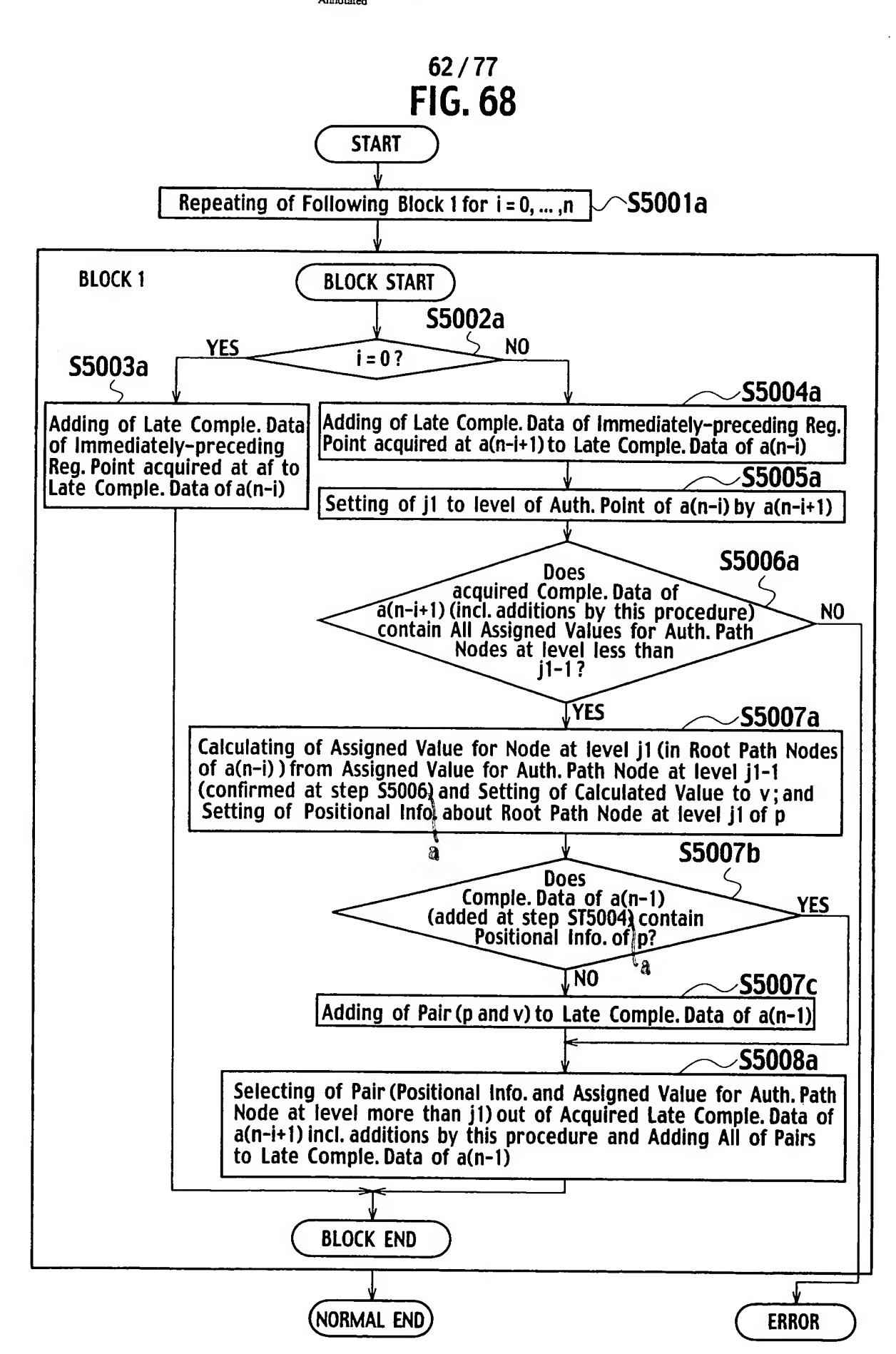
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Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
Annotated

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FIG. 67



Inventore: Eiichi HORITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
Annotated



Invantora: Eiichi HORITA
Filed: July 21, 2006
Title: Event-Ordering Certification Method
Attorney Docket: 44471/332867
Attorney of Record: Brenda O. Holmes, Reg. No. 40,339
Correspondence Address & POA Customer No. 23370
Phone: 404.815.6500
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FIG. 76

START

• • •

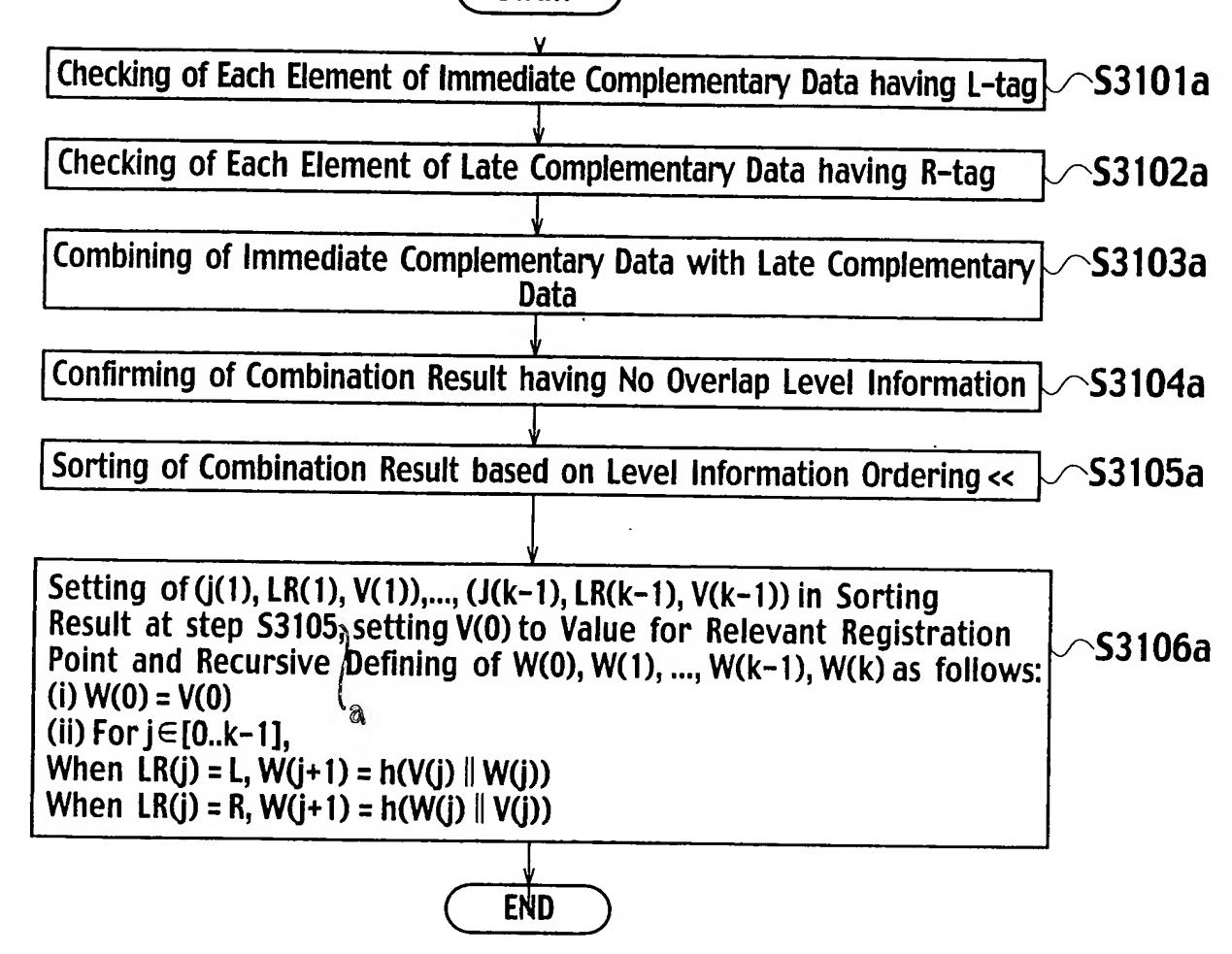


FIG. 77

Positional Information: ((L, TID(n), k(n)), 0)
Assigned Value: h(V(R(n-1)) || V(R1(n)))

R(n-1)

R1(n)

Positional Information
((L, TID(n-1), k(n-1)), 0)

((R, TID(n), k1(n)), 1)

ST1(n)

ST(n)

R(n)